

CLAIMS

What is claimed is:

1. A vibrating reed comprising:
a base; and
a vibration arm section formed so as to protrude from the base, wherein a through groove is formed in said vibration arm section, and a rigidity reinforcing section is provided in the through groove.
2. A vibrating reed according to Claim 1, wherein said rigidity reinforcing section further comprises a coupling section formed so as to span said through groove.
3. A vibrating reed according to Claim 2, wherein said through groove has longer sides and shorter sides, and said coupling section is a side bar which is coupled so as to span said longer sides.
4. A vibrating reed according to Claim 3, wherein a thickness of said side bar is substantially the same as a depth of said through groove.
5. A vibrating reed according to Claim 3, wherein a thickness of said side bar is shorter than a depth of said through groove.
6. A vibrating reed according to Claim 5, wherein said side bar further comprises a half etched side bar which is to be shorter than a depth of said through groove.

7. A vibrating reed according to Claim 3, wherein a plurality of said side bars are arranged in said through groove.

8. A vibrating reed according to Claim 1, wherein a cut section is formed in said base.

9. A vibrating reed according to Claim 8, wherein said base is provided with a fixation area for fixing the vibrating reed, and said cut section is provided in the base between the fixation area and said vibration arm section.

10. A vibrating reed according to Claim 1, wherein said vibrating reed further comprises a tuning-fork vibrating reed formed of a crystal which oscillates at approximately 32 kHz.

11. A vibrator having a vibrating reed housed in a package, said vibrating reed comprising:

a base; and

a vibration arm section formed so as to protrude from the base, wherein a through groove is formed in said vibration arm section of said vibrating reed, and a rigidity reinforcing section is provided in the through groove.

12. A vibrator according to Claim 11, wherein said package is formed in a box shape.

13. A vibrator according to Claim 11, wherein said package is formed in a cylinder shape.

14. An oscillator having a vibrating reed and an integrated circuit housed in a package, said vibrating reed comprising:

a base; and

a vibration arm section formed so as to protrude from the base, wherein a through groove is formed in said vibration arm section of said vibrating reed, and a rigidity reinforcing section is formed in the through groove.

15. An electronic device using a vibrator which is connected to a control section, said vibrator having a vibrating reed housed in a package, said vibrating reed comprising:

a base; and

a vibration arm section formed so as to protrude from the base, wherein a through groove is formed in said vibration arm section of said vibrating reed, and a rigidity reinforcing section is formed in the through groove.